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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/571,140	03/09/2006	Fumihiro Yaguchi	0038-0491PUS1	3933

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EXAMINER

BOBISH, CHRISTOPHER S

ART UNIT	PAPER NUMBER
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3746

NOTIFICATION DATE	DELIVERY MODE
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06/11/2009

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/571,140	Applicant(s) YAGUCHI ET AL.	
	Examiner CHRISTOPHER BOBISH	Art Unit 3746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 April 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 7, 9 and 10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 7, 9 and 10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/02/2009 has been entered.

Response to Amendment

The amendment filed on 03/02/2009 under 37 CFR 1.131 has been considered but is ineffective to overcome the Kurahashi reference.

Claims 1-6 and 8 have been cancelled, claims 7 and 9-10 are pending.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 7 and 9-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hirabayashi (European Patent Application No. 0605903 A1) in view of Kurahashi et al (JP 03- 31913 B2).

Claim 7;

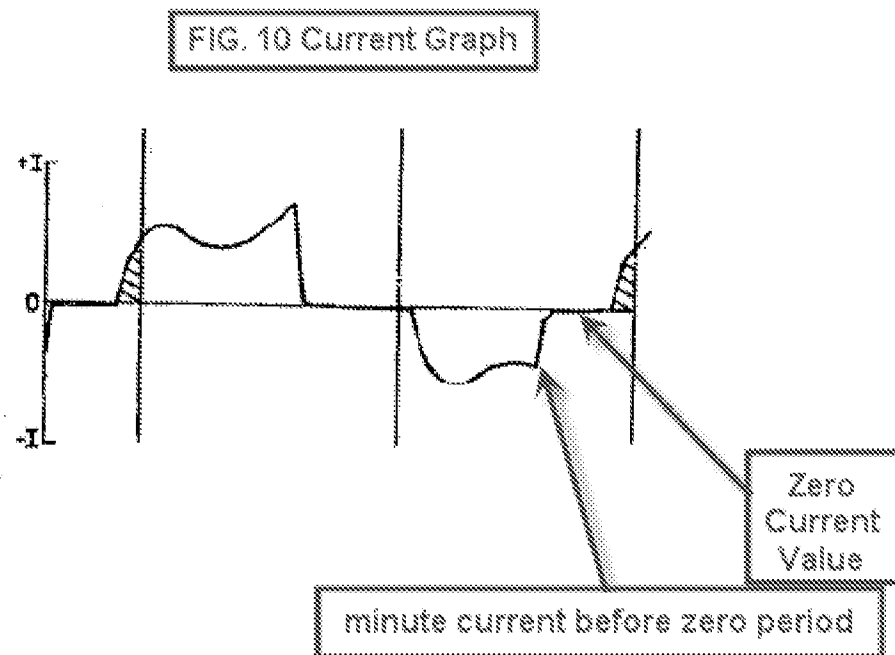
Hirabayashi teaches:

a method of driving an electromagnetic pump, the method comprising: conveying a fluid from a pump chamber, **FIG. 1 (2) C. 4 Line 32-33**, formed inside a cylinder, **FIG. 1 (4) C. 4 Lines 31-33**, by housing a plunger, **FIG. 1 (10) C. 4 Lines 37**, including a permanent magnet, **FIG. 1 (27) C. 4 Line 38**, inside the cylinder; passing a current through an aircore electromagnetic coil, **FIG. 1 (11a, 11b) C. 4 Lines 30-31**, fitted around the cylinder to reciprocally move the plunger in the axial direction inside the cylinder, **C. 1 Lines 34-36**;

Hirabayashi does not teach a driving current including a period of zero voltage nor does Hirabayashi teach a minute voltage pulse, but Kurahashi does.

Kurahashi teaches:

a method of driving an electromagnetic pump comprising: **examiner considers a compressor to be equivalent to a pump, it would be obvious to use the method taught by Kurahashi with the magnetic pump of Hirabayashi**, flowing a pulse current including a period where a voltage or current value is zero when a supplied current of the electromagnetic coil is inverted (**see Page 2 Lines 2-11 of the translation**); wherein a minute current of at least 30 percent of an inverted maximum current flows for a minute time period before the period where the current value is zero, when the polarity of the applied current of the electromagnetic coil is inverted (**see the adapted version of the third graph in FIG. 10 as provided below**);



Claims 9 and 10;

Hirabayashi further teaches:

a method of driving an electromagnetic pump, the method comprising: conveying a fluid from a pump chamber, **FIG. 1 (2) C. 4 Line 32-33**, formed inside a cylinder, **FIG. 1 (4) C. 4 Lines 31-33**, by housing a plunger, **FIG. 1 (10) C. 4 Lines 37**, including a permanent magnet, **FIG. 1 (27) C. 4 Line 38**, inside the cylinder; passing a current through an aircore electromagnetic coil, **FIG. 1 (11a, 11b) C. 4 Lines 30-31**, fitted around the cylinder to reciprocally move the plunger in the axial direction inside the cylinder, **C. 1 Lines 34-36**;

Hirabayashi does not teach an offset voltage, but Kurahashi does.

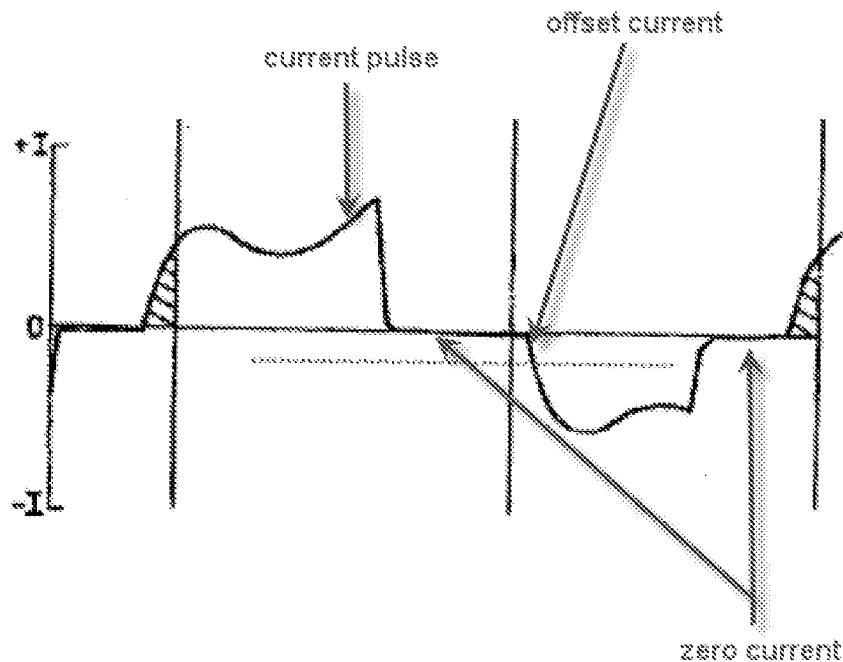
Kurahashi teaches:

a method of driving an electromagnetic pump, **examiner considers a compressor to be equivalent to a pump, it would be obvious to use the method taught by Kurahashi with the magnetic pump of Hirabayashi**, the method comprising: flowing an offset current of no greater than 30% of an

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inverted maximum current when a polarity of a supplied current of the electromagnetic coil is inverted, wherein before a period where the offset current flows, a minute current pulse at least 30 percent of the maximum current flows;

FIG. 10 included below and amended by the examiner shows an offset voltage being applied when the polarity of the driving voltage changes, the current as labeled does not appear to be greater than 30% of the max voltage;



It would have been obvious to one having ordinary skill in the art at the time of the invention to combine the driving method of Kurahashi with the magnetic pump of Hirabayashi to reduce vibrations cause by the reciprocating piston when the voltage polarity is switched.

Response to Arguments

Applicant's arguments with respect to claims 7, 9 and 10 have been considered but are moot in view of the new ground(s) of rejection.

The third graph of the Kurahashi reference has been used to reject the claims. This graph displays the current behavior rather than the voltage behavior.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHRISTOPHER BOBISH whose telephone number is (571)270-5289. The examiner can normally be reached on Monday through Thursday, 7:30 - 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Devon Kramer can be reached on (571)272-7118. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Christopher Bobish/
Examiner, Art Unit 3746

/Devon C Kramer/
Supervisory Patent Examiner, Art
Unit 3746

/C. B./
Examiner, Art Unit 3746